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Massive Gastrointestinal Hemorrhage From AIDS-Related Kaposi's Sarcoma Confined to the Small Bowel Managed With Radiation

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A >50% incidence of Kaposi's sarcoma (KS) of the gastrointestinal tract has been seen in acquired immunodeficiency syndrome (AIDS) patients with cutaneous KS. Although gastrointestinal Kaposi's sarcoma (GIKS) is usually asymptomatic, hemorrhages from the oral cavity, esophagus, stomach, and large bowel have occurred in this disease. We describe a patient with acute, massive gastrointestinal hemorrhage from GIKS confined to the small bowel who was treated with chemotherapy, surgery, and radiation. To the best of our knowledge, this is the first reported case of AIDS-related GIKS limited to the small bowel. Although chemotherapy is generally used successfully to palliate diffuse GIKS, we report that radiation was an effective modality that rapidly resulted in resolution of considerable local bleeding and could be used in such cases as an alternative to surgery. Details of this case history, including radiographs, are presented. © 1996 Wiley-Liss, Inc.

INTRODUCTION

Kaposi's sarcoma (KS) of the skin is the most common neoplasm in acquired immunodeficiency syndrome (AIDS) patients. Cutaneous KS develops in ~30% of patients with positive test results for the human immunodeficiency virus (HIV). The incidence of gastrointestinal Kaposi's sarcoma (GIKS) in patients with cutaneous KS lesions may be as high as 80% [1,2]. Parente et al. [3] prospectively studied 33 consecutive AIDS patients with cutaneous KS who had no gastrointestinal symptoms. Upper and lower gastrointestinal endoscopy showed that more than half had unsuspected GIKS. Cello et al. [4] reported that 6 of 37 (16%) AIDS patients evaluated for upper and lower gastrointestinal bleeding had symptoms attributable to GIKS. GIKS is usually asymptomatic, and substantial bleeding is rare. However, acute massive hemorrhage has been reported [5,6] and has caused death in some patients [6,7].

CASE REPORT

A 53-yr-old, homosexual, white man who had been infected with HIV for at least 7 years was admitted to the medical center because of a 3-day history of melena, fatigue, and syncope associated with anemia (hemoglobin: 6.3 g/dL). He had a 6-mo history of cutaneous KS treated with adriamycin, bleomycin, and vincristine (ABV) as well as with intralesional and systemic α-interferon. At examination, he was hypotensive and tachycardic. He had gross melena. Platelet count, prothrombin time, partial thromboplastin time, and blood chemistry results were normal. The patient's condition was stabilized with intravenous hydration and transfusions of nine units of packed erythrocytes. Esophagogastroduodenoscopy of the alimentary canal extending to 160 cm from the incisors did not reveal the site of bleeding. Mucosa appeared normal. Colonoscopy of the region extending to 10 cm proximal to the ileocecal valve showed brisk bleeding from above that point. Meckel's technetium and abdominal computed tomography scans produced normal findings. An upper gastrointestinal barium study with small bowel followthrough showed a possible source of bleeding in the proximal jejunum (Fig. 1). A technetium-99-tagged erythrocyte scan (tagged erythrocyte scan) revealed areas of increased radioisotope uptake consistent

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Fig. 1. Preoperative barium study film is consistent with bleeding in proximal jejunum.

with small bowel bleeding (Fig. 2). Because of its diffuse nature, bleeding did not seem amenable to treatment by arterial embolization. The patient had intermittent fever; blood culture produced cytomegalovirus. Intravenous ganciclovir treatment was started.

At exploratory celiotomy, multiple, small, intramural lesions confined to the small bowel were found. Two prominent 4 × 5 cm tumors associated with intraluminal blood were found distal to the ligament of Treitz. These areas of active bleeding correlated with sites identified on the tagged erythrocyte scan and were resected. Histopathologic examination results showed diffuse intramural KS in 2 small bowel segments, one 19.5 cm long and the other 4.7 cm long.

After operation, melena resolved, and the hemoglobin level stabilized at 10 g/dL. On the sixth postoperative day, melena and anemia recurred, and multiple transfusions were required. Platelet count and liver function test and coagulation study results were again normal. Results of a tagged erythrocyte scan combined with those of plain x-ray films identifying focal anastomotic sites (Figs. 3 and 4) were consistent with a new site of active bleeding from residual GIKS.

Because of significant bleeding, large-fraction radiotherapy was administered consisting of 3 Gy fractions, 1 fraction per day, prescribed to the midplane through a 16 × 20 cm anteroposterior-posteroanterior abdominal field utilizing 6-MeV photons (Fig. 3). Melena resolved rapidly and hemodynamics stabilized after the first two fractions. The dose per fraction was reduced to 2 Gy for six additional treatments while using the same ports to complete a course of 20 Gy in eight fractions during 13 days. The patient was discharged after the fourth fraction and finished radiotherapy as an outpatient. He was able to return to his workplace a week after the last radiation treatment. Results of endoscopic examination before his death showed asymptomatic purple lesions in the distal esophagus and proximal jejunum consistent with new and residual GIKS. The patient died of infection 4 mo after radiotherapy was completed. Autopsy was not done.

DISCUSSION

Large fraction radiotherapy has been advocated in controlling hemorrhage in tumor sites including the bronchus, pelvis, skin, gastrointestinal tract, and head and neck. Although the exact mechanism of hemostasis is not clear, tissue damage induced by radiation may initiate and enhance blood clotting cascades. Radiotherapy is known to be effective for focal, AIDS-related KS [7]. Berson et al. [8] described a high overall rate of response (95%) to radiotherapy of cutaneous KS lesions in AIDS patients; 70% still responded 6 mo after treatment, and 50% still responded 12 mo after, which indicates the inherent radiosensitivity of this tumor (Table I). Berson et al. [8] further reported rapid, clinically significant relief of dyspnea and hemoptysis in 11 patients with lung lesions as well as relief of pain and gastric outlet obstruction in 11 patients with GIKS. No patient in their series had acute massive hemorrhage or lesions confined to the small bowel. Gastric hemorrhage from non-AIDS-related GIKS in a man with liver disease was treated with a cumulative dose of 30 Gy of radiotherapy given during 6 wk. Rapid resolution of bleeding was confirmed by serial endoscopic studies [6]. In our severely immunosuppressed AIDS patient, GIKS-related bleeding of the small intestine progressed despite chemotherapy, but radiotherapy proved highly effective in controlling the bleeding.

The incidence of KS is higher in patients with immunosuppression related to organ transplantation, AIDS, immunologic abnormality, or chronic steroid therapy [1,3,6]. Chemotherapy for AIDS patients has presented major problems because of their often severe neutropenia aggravating immune deficits. Laine et al. [9] reported that 9 of 15 (60%) GIKS lesions in a series of seven patients responded to ABV chemotherapy. Our patient

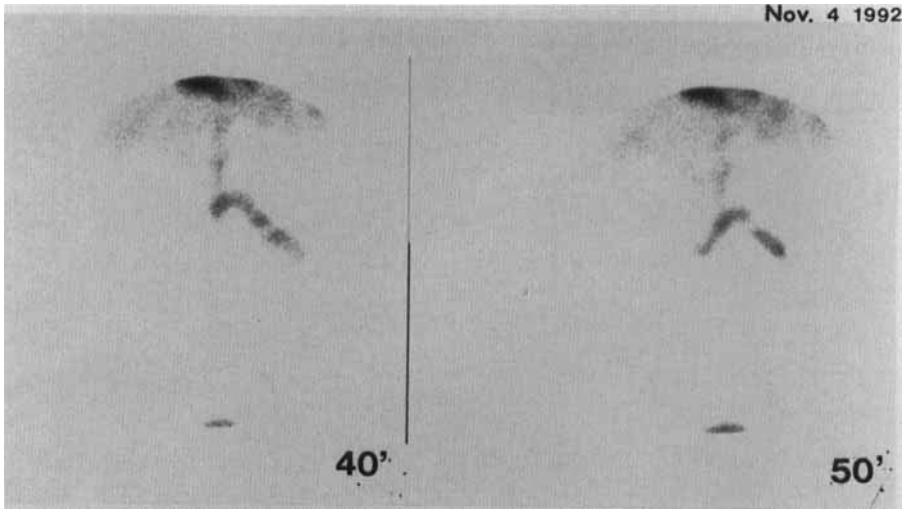

Fig. 2. Preoperative tagged erythrocyte scan shows aortic, caval, and iliac vessels as well as diffuse small bowel bleeding.

could have received aggressive chemotherapy, but because of active opportunistic infection, radiotherapy was thought to be less immunosuppressive.

Although chemotherapy has been successful in treating GIKS [3,9], radiotherapy is also effective because it produces rapid resolution of bleeding. Radiotherapy is useful in patients with neutropenic infections or in patients with compromised hepatic or renal function who cannot tolerate chemotherapy. Radiotherapy may produce less immunosuppression than chemotherapy as well as more rapid response of acute GIKS-related bleeding.

The differential diagnosis for patients with progressive, epidemic, cutaneous KS and GI bleeding of recent onset includes infection, peptic ulcer, GIKS, varices, and other conditions. Like cutaneous KS, GIKS is usually diffuse. Our patient initially had no endoscopic findings that suggested GIKS, and surgery was necessary for diagnosis. After reviewing the biomedical literature in English, we believe this is the first reported case of massive gastrointestinal hemorrhage from AIDS-related GIKS confined to the small intestine. We cannot conclude that radiation is effective in treating acute bleeding caused by GIKS of the small bowel based on this one case report. However, radiotherapy appears to have resulted in resolution of gastrointestinal bleeding for ~4 mo in our patient. We recommend radiotherapy as an alternative to surgery in managing patients with endoscopic evidence of severe bleeding from small bowel GIKS because of its diffuse nature and radiosensitivity.

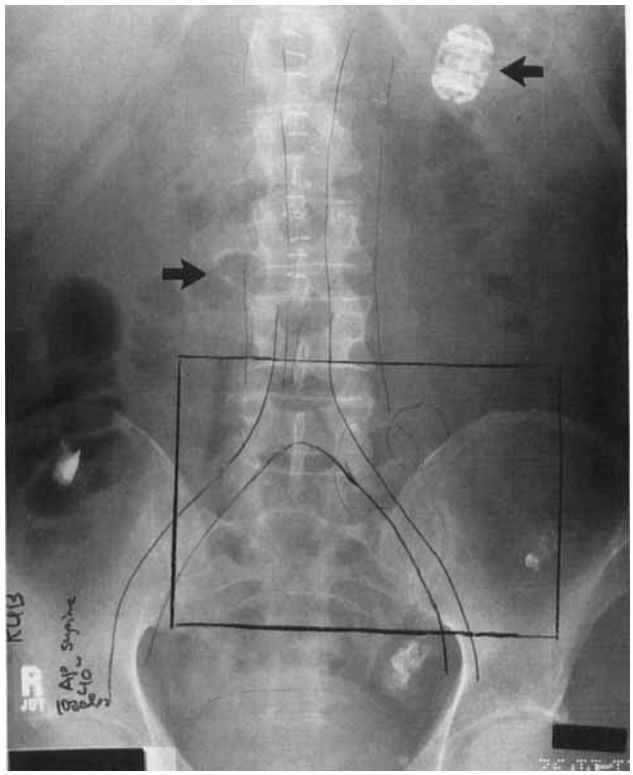

Fig. 3. Flat plate shows biofragmentable anastomotic ring (jejunum) and anastomotic staples (ileum) (arrows).

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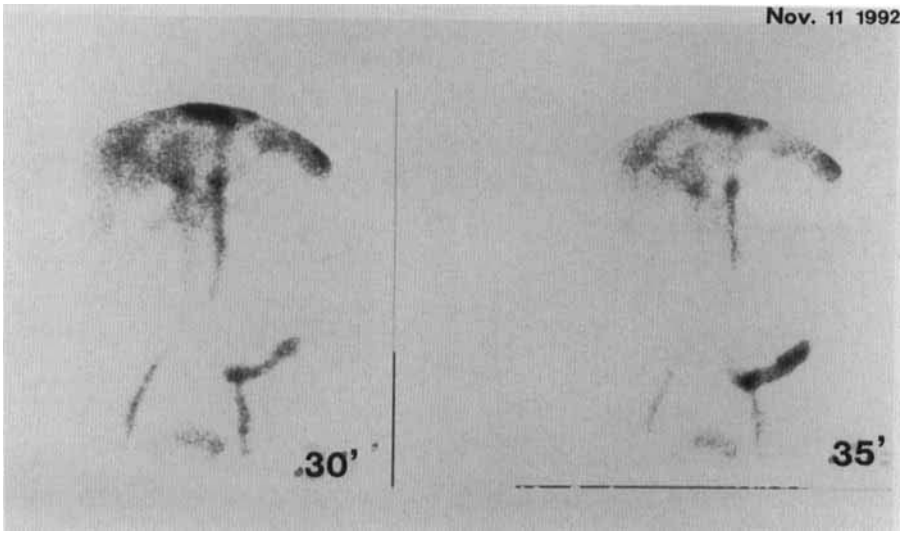

Fig. 4. Tagged erythrocyte scan shows new site of active bleeding.

TABLE I. Radiosensitivity of Kaposi's Sarcoma: Dose Response at Various Anatomic Sites

Site (%)	No. fields	Dose range (Gy)	Response (%)	Grade 2 or 3 reaction
Gastrointestinal (total):	11	15–20	91	36
anorectum 8		1.5–2 cGy/day	88	50
esophagus/stomach (2 preterminal) 3		not listed	100	0
Upper aerodigestive tract (oral cavity, pharynx, larynx)	45	16–20	91	33
Lung	11	10.5–15	82	0
Nodes	37	8–30	92	5
Skin	266	8–40	95	11
Total	370	8–40	94	17

Mean survival after treatment was 6 mo; median time to progression: 21 mo. (adapted and reproduced by permission of the author and publisher from: Berson AM, Quivey JM, Harris JW, Wara WM. Radiation therapy for AIDS-related Kaposi's sarcoma. Int J Radiat Oncol Biol Phys 19:569–575[8], 1990).

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